

## DETAILED ACTION

Claims 1-11 are pending in the instant application. Claim 12 was cancelled in an amendment filed on December 6, 2005. Claims 1-11 are rejected.

### ***Information Disclosure Statement***

The information disclosure statement filed on December 6, 2005 was considered and a signed copy of form 1449 is enclosed herewith.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laali et al. in view of Kim et al.

#### *Determination of the scope and contents of the prior art.*

Laali et al. discloses a one-pot diazotization-fluorodediazoniation reaction in ionic liquid solvents (scheme 2, page 32).

Kim et al. discloses (page 4282) that “the immiscibility of some ionic liquids with some solvents, such as ether, benzene, hexane, etc. and water, provides a bi- or triphasic system that affords facile extraction of the desired products from ionic liquids.”

*Ascertaining the differences between the prior art and the instant claims.*

Laali et al. discloses the same one-pot reaction as disclosed in the instant claims (i.e. without the need to first isolate the aryl diazonium salt from the hydrophobic ionic liquid) except that the reaction disclosed in Laali et al. is performed under anhydrous conditions.

*Resolving the level of ordinary skill in the pertinent art – Prima Facie Case of Obviousness.*

Since it was known in the art at the time of the invention that a biphasic system affords facile extraction of the desired product(s) (i.e. Kim et al.), it would have been obvious to one of ordinary skill at the time of the invention to mix the ionic liquid solvents disclosed in Laali et al. with an aqueous solvent system (and to arrive at the instant invention) so that this advantage could be utilized.

The motivation would be to have an alternative way of making the desired product which, in turn, could be easier (since according to Kim et al., this biphasic system affords facile extraction of the desired product) or more efficient (i.e. could result in higher yields of the product(s)). One of ordinary skill would have reasonable expectation of success in practicing the instantly claimed process.

Further, the courts have stated that changes in the process conditions of an old process does not impart patentability in the absence of unexpected results. *In re Boesch*, 205 USPQ 215 (1980). *In re Aller et al.* (CCPA 1955) 220 F2d 454.

Thus, the instant claims are *prima facie* obvious over the prior art.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

EP0596684 in view of Lancaster et al.

*Determination of the scope and contents of the prior art.*

EP0596684 discloses a process (abstract) for the preparation of aromatic compounds of the general formula I by reaction of an aryl diazonium salt of the formula II with water, HCl or a salt thereof, HBr or a salt thereof, or a cyanide in the presence of a copper(I)salt. EP0596684 also discloses in example 1 b. (page 4) that ethyl acetate is added to the mixture of copper sulphate pentahydrate, trisodium citrate dihydrate and water, the two phase mixture is vigorously stirred,

the diazonium solution is added to the stirred mixture, the mixture is allowed to settle and the organic phase is separated (and contains the final product).

Lancaster et al. discloses (page 8855) that ionic liquids are environmentally benign solvents.

Ascertaining the differences between the prior art and the instant claims.

EP0596684 discloses the same one-pot reaction (i.e. which involves a biphasic solution) as disclosed in the instant claims except that a hydrophobic ionic liquid is not used in the reaction.

Resolving the level of ordinary skill in the pertinent art – Prima Facie Case of Obviousness.

Since Lancaster et al. discloses that ionic liquids are environmentally benign solvents, it would have been obvious to one of ordinary skill of the art at the time of the invention to carry out the reaction disclosed in EP0596684 using a hydrophobic ionic liquid and to mix this hydrophobic ionic liquid with an aqueous solvent system (and to arrive at the instant invention) so that the same biphasic effect could be utilized as in example 1.

The motivation for carrying out the reaction through the use of a hydrophobic ionic liquid would be to use a solvent which is environmentally benign and to have an alternative and, in turn, perhaps easier or more efficient way of producing the desired product. One of ordinary skill would have reasonable expectation of success in practicing the instantly claimed process.

Further, the courts have stated that changes in the process conditions of an old process does not impart patentability in the absence of unexpected results. In re Boesch, 205 USPQ 215 (1980). In re Aller et al. (CCPA 1955) 220 F2d 454.

Thus, the instant claims are *prima facie* obvious over the prior art.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KRISTIN BIANCHI whose telephone number is (571)270-5232. The examiner can normally be reached on Mon-Fri 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kamal A Saeed, Ph.D./  
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